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Profile of women who carried out smoking cessation treatment: a systematic review

ABSTRACT

OBJECTIVE: Analyze the profile of women, in health services, who carry out treatment for smoking cessation.

METHODS: Systematic review that used the following sources of information: Cumulative Index to Nursing and Allied Health Literature (CINAHL), PubMed, *Biblioteca Virtual em Saúde* (BVS), Scopus and Web of Science. We included quantitative studies that addressed the characterization of women, in health services, who carried out treatment for smoking cessation, resulting in 12 articles for analysis. The assessment of the methodological quality of the studies was performed using the instrument MASTARI from Joanna Briggs Institute.

RESULTS: The predominant profile of women who carried out treatment for smoking cessation in health services was composed of white, married, employed, and highly level educated women. Women who carried out the treatment for smoking cessation in specialized services had a more advanced age, were white, were married and had a diagnosis of depression. The quality level of most studies was moderate.

CONCLUSIONS: The profile of women who carry out treatment for smoking cessation, either in general or specialized health services, is composed of white, married, and highly level educated women. Publications about smoking women are scarce and the lack of Brazilian studies characterizing the profile of women who start treatment for smoking cessation shows the need for studies that explore this subject.

DESCRIPTORS: Women. Tobacco Use Cessation. Patient Compliance. Health Services. Review.

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INTRODUCTION

In the early 20th century, cigarette use was a habit restricted to the male urban elite, in a small number of countries at the beginning of industrialization. Currently, cigarettes are consumed on a global scale and are considered the most utilized and disseminated drug in the contemporary society. Its use is the main cause of preventable death among men and women, totalizing approximately six million deaths in the world.^a Although tobacco use among men is higher, it is declining among this group in several countries, while the rate of female smokers is in constant growth.^b From 1950 to 2000, about 10 million women died due to tobacco use,²⁰ and it is estimated that from 2002 to 2030 this number will exceed 40 million.²²

Smoking-related diseases in men and women should be interpreted as a multifaceted phenomenon, considering the complexity of the influences of gender related to tobacco, and the changing social norms that shaped the diversity and the pattern of use.¹² Evidences indicate specific factors related to gender. For example, studies^{27,34,35} point the high risk of several types of cancers in female smokers, particularly bladder and uterus cancer, in addition to increasing the risk of infertility in women.

Concerning smoking habit cessation, men and women present slight differences, however significant, in relation to the characteristics of nicotine dependence. Although controversial, studies^{5,15,24,26,29} suggest that women have greater difficulty in quitting smoking than men because smoking women's behavior is more influenced by mood and negative affection, while men are more conditioned by pharmacological response regulated by nicotine intake.³ Women also have faster nicotine metabolism² and higher prevalence of depression than men. Additionally, there is evidences that nicotine may interact differently in the body during menstrual cycle, causing reactions during the abstinence period.^{2-4,10} On the other hand, the higher demand for health services by women, compared to men,¹ suggests more easiness to recognize problems related to health and to seek assistance.

Due to social, economic and cultural changes that affected women – as the massive insertion in the job market and, consequently, more purchasing and decision power within the society –, smoking industry started considering women customers as a promising market. By millionaire advertisement campaigns, it heavily invested in satisfying women's desires, as well as their social demands.³⁰ Advertisements are used to explore concepts such as freedom, independence, self-assertion, social ascension and beauty. This last concept is responsible for imposing and reinforcing

body aesthetic standards that influence the initiation and permanence in tobacco consumption among women.⁶ Currently, smoking is understood as a complex and multicausal health problem involving biological, psychological and social factors.⁶

In Brazil, most of the population seeking treatment in health services to cease smoking is female;^{1,a} however, published studies about this subject are scarce. Because of these facts, the aim of this study was to analyze the profile of women, in health services, who carry out treatment for smoking cessation.

METHODS

We performed a systematic review according to the Joanna Briggs Institute (JBI) review manual.^c

We consulted the following sources for information during the period from April 7, 2014 to April 22, 2014: *Biblioteca Virtual em Saúde* (BVS), Cumulative Index to Nursing and Allied Health Literature (CINAHL), Medline (via PubMed), Scopus and Web of Science. Keywords were grouped as follows: “smoking cessation” and “women's health” and “health services”, in the BVS; “women's health” and “health services” and “smoking cessation” in PubMed; “women's health” and “health services” and “smoking cessation”, in CINAHL; “smoking cessation” and “health services” and “women's health”, in Scopus; and TS = (“smoking cessation” and “women's health” and “health services”), in the Web of Science.

We used the following eligibility criteria: (1) articles about smoking women who sought care in general health services and who participated in smoking cessation programs offered at these places; (2) articles in English, Spanish or Portuguese that addressed the profile of smoking women who sought specialized health services for smoking cessation; (3) articles that reported quantitative surveys and that were available in full on the sources of information researched.

For the selection of the articles, the first author of this study (Pereira CF) made an initial tracking by reading the summaries of the works and identifying those that met the inclusion criteria. In case of doubt about the relevance of the article for inclusion in the analysis, both authors (Pereira CF, Vargas D) examined it independently. Uncertainties regarding the quality of the studies were resolved by discussion among them. Periodicals in which each article was published were

^a World Health Organization. WHO report on the global tobacco epidemic - warning about the dangers of tobacco 2011. Geneva; 2011.

^b World Health Organization. 10 facts on gender and tobacco 2011. Geneva; 2011.

^c Joanna Briggs Institute. Reviewers' Manual: 2014 edition. South Australia; 2014 [cited 2014 Jun 25]. Available from: <http://joannabriggs.org/assets/docs/sumari/ReviewersManual-2014.pdf>

considered relevant if their impact factor were higher than or equal to 1.0.

In the five sources of information researched, we found 156 studies; 15 were duplicate, remaining 141 studies for selection; out of these, 129 were excluded because they were out of the eligibility criteria. The final sample of the review was composed of 12 studies. A summary of the literature identified in each stage of the research process can be found in the Figure, PRISMA flow diagram.²⁵

The first author extracted the following information from each article included in the analysis: location (country) and study outline, year of publication, population/sample, interventions (type of treatment), outcomes and main results. Independently, the second author checked the extracted data and made changes as needed. Both authors led the quality assessment of the studies and reached an agreement using the MASTARI, a statistical evaluation instrument of meta-analysis and review from Joanna Briggs Institute.^c According to the studies found, all of the three assessment tools that comprise the MASTARI were used: 1) critical

evaluation of comparable cohort/case-control, 2) critical evaluation of randomized control/pseudo-randomization and 3) critical evaluation of descriptive/case-series. To evaluate the methodological quality of the articles, cut-off scores between one and 10 were established. Articles that scored between one and four were classified as low methodological quality; articles with scores between five and seven, as moderate quality; and those with scores > 7, as high quality.

RESULTS

Out of the 12 studies found, six evaluated smoking women who were at general health services and have accepted to participate in the smoking cessation program offered by the services. The other six studies evaluated smoking women who were at specialized services for smoking cessation. The Table indicates, respectively, the studies described above.

The studies that formed the final sample were performed in the United States (10) and in Italy (two). The interview was made in person or by telephone

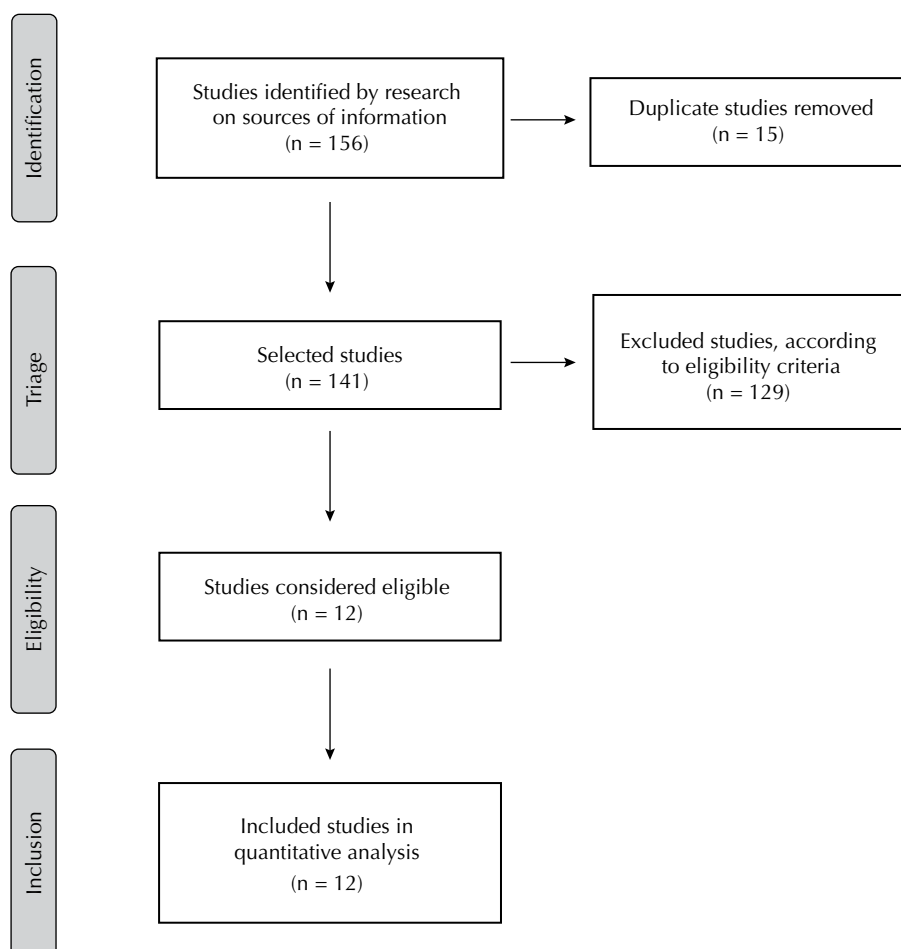


Figure. Flowchart of the selection process of studies for the systematic review.

Table. Characteristics of intervention studies for smoking cessation among women.

Author/year/location	Methods	Result	Quality Level
McClure et al ²³ (2005) United States	N = 275 Randomized clinical trial Interventions: usual care treatment and improved motivational counseling Telephone counseling program comprised in four calls Chi-square test, t-test, logistic regression	Young women with an average age of 32.7 years 81.8% were white 50.0% were married 45.4% had at least completed high school 83.3% were employed They smoked approximately 14.3 cigarettes per day 78.0% made an effort to quit smoking 51.3% had no assistance to cease smoking Half of them considered stop smoking within six months Most smokers of both groups tried to cease smoking at least once (82.1% improved motivational counseling; 77.5% usual care) During the treatment, 52 women reported abstinence (27 usual care, 25 improved motivational counseling)	Moderated
Chellini et al ¹⁰ (2011) Italy	N = 1,100 Randomized clinical trial Interventions: Intervention in the smoking habit by motivational stages, intervention in the smoking habit associated to physical activity and control intervention Questionnaire and follow-up by phone Descriptive statistical analysis, Chi-square test, Mann-Whitney U nonparametric test	Age between 25-64 years 56.0% were married 70.3% had a job Onset of smoking at an average age of 18/19 years 45.0% were involved in moderate or intense physical activity 21.0% were in preparation stage 45.0% in action and maintenance 23.0% had high or very high dependence to nicotine No significant difference has been found between the three study groups	Moderated
Chellini et al ¹¹ (2011) Italy	N = 177 Cohort study Interventions: brief counseling paired with motivational stage for smoking cessation and face to face interviews Face to face and phone interview, and questionnaire Logistic regression analysis, Kruskal-Wallis test, Cuzik test, Chi-square test	Variable age was not associated to the cessation Women who smoked 11-20 cigarettes a day were less likely to quit smoking when compared to those who smoke from 1-5 cigarettes a day 72.9% women had high educational level Age between 30-59 years 72.3% worked 71.7% smoked their first cigarette before or just after breakfast 17.0% ceased smoking There was significant reduction of tobacco consumption	Moderated
Manfredi et al ²¹ (1999) United States	N = 1,064 Randomized clinical trial Interventions: materials and strategies based on the method of motivation and the theory of the stages of change Interviews by phone and face to face Logistic regression analysis	Young women 38.0% had a school level higher than high school The average time they smoked was 12.6 years Participants exposed to the intervention were more likely to stop (14.5%) than those who were not exposed (7.7%), in addition to presenting high average rates of action, stage of readiness and motivation	Weak
Buchanan et al ⁸ (2008) United States	N = 50 Descriptive exploratory study Interview and follow-up by phone Likert scale, Cronbach's alpha, t-test, descriptive statistics	Women with an average age of 44.75 years 82.0% were white 38.0% were married 52.0% completed high school, 40.0% completed higher education 73.0% were employed 32.0% reported a history of depression and 22.0% used antidepressant drugs 62.0% had friends who smoked 48.0% had a smoking partner	High

Continue

Continuation

Glasgow et al ¹⁸ (2000) United States	N = 1,154 Randomized clinical trial Interventions: counseling and brief intervention based on motivational interview Interview in person and by phone Analysis of variance and multiple logistic regression	Women with an average age of 24 years 89.0% were white 43.0% had completed high school Average time of tobacco use of 6 years Less than 30.0% were intending to quit smoking in the next month There were no significant differences between the intervention and control groups	Moderated
O'Hara P, Portser SA ²⁸ (1994) United States	N = 45 Clinical trial Interventions: behavioral self-management program, which worked with the management of weight gain and the ability to manage stress Interviews by phone and questionnaire Nonparametric test	Younger women smoked more cigarettes per day (28.6 cigarettes) than older women (23.4 cigarettes) Health problem reports was the main reason for them to quit smoking 68.0% of women reported that weight gain after quitting smoking was a problem for them Younger women were more concerned about weight gain when quitting smoking	Weak
Sherman et al ¹³ (2004) United States	N = 1,150 Cohort study Interviews by phone and face to face Chi-square test, analysis of variance, logistic regression	Women with an average age of 50 years 72.0% white 25.0% married 33.0% with obstructive pulmonary disease 37.0% with depression 87.0% have tried to quit	Moderated
Burgess et al ⁷ (2009) United States	N = 1,019 Cohort study Interview by phone Chi-square test, multinomial logistic model, stratified regression	Women with an average age of 41.9 years 53.0% completed higher education 55.0% showed depression, anxiety or post-traumatic stress 54.0% used medication for depression 28.0% used medication for anxiety Job negatively correlated to the abandonment of smoking women	Moderated
Turner et al ¹⁵ (2001) United States	N = 722 Randomized clinical trial Interventions: reading the manual organized around themes focused on the stage of readiness for change, and television programs that show stages of change using images Interviews by phone and questionnaire Multiple regression	Average age of 45.2 years They all had completed high school 70.9% were white 49.9% were married 44.0% were unemployed The manual increased the readiness to cease smoking in stages of preconception Manual had more effect than television	High
Franklin et al ¹⁶ (2008) United States	N = 102 Randomized clinical trial Interventions: nicotine replacement therapy and behavioral therapy for smoking cessation Interviews by questionnaire ANOVA, Chi-square test	Average age of 35.6 years They smoked an average of 26.5 cigarettes per day They smoked since 18 years old 72.0% were white, 22.0% black, 4.0% asian, 1.0% spanish and 1.0% other In the follicular phase the success of cessation increased compared to the luteal phase In the follicular phase they felt less desire for cigarette stimuli than in the luteal phase	Moderated
Carpenter et al ⁹ (2008) United States	N = 44 Randomized clinical trial Interventions: smoking cessation counseling sessions and transdermal nicotine replacement therapy Interview by questionnaire, phone and visiting the interviewee's home T-test, ANOVA, logistic regression	White and unmarried women had low levels of moderate dependence to nicotine Women in the follicular phase of the menstrual cycle had greater fissure, fatigue and confusion when compared to women in the luteal phase Lower self-efficacy in women in follicular phase Higher level of depression in women in follicular phase than women in luteal phase	Moderated

using a questionnaire. It was the main data collection strategy and was used in 12 studies.

Smoking women who were at general health services

Out of the total studies conducted in general health services, three were developed in cervical cancer prevention services,^{10,11,23} two in specialized health services in women's health,^{18,21} and one in services that aim to decrease the risk of cardiovascular diseases.⁸ In cervical cancer prevention services, most women were young average-aged, were highly level educated, were married, and were employed; two of the three studies were performed in Italy.^{10,11} In the specialized health services in women's health, women were young-aged and highly level educated; however, in the services aimed at decreasing the risk of cardiovascular diseases, most women were middle-aged, were highly level educated and were employed.

Smoking women who were in specialized services for smoking cessation

Out of the six studies carried out in specialized services for smoking cessation, four occurred in research centers^{9,16,28,35} and two in health care centers (one at the Veterans Health Administration,³³ a wide system of health care in the world in which most of the units have a smoking cessation program, and the other in a health care program of Minnesota administered by the Minnesota Department of Human Services).⁷ The population of the studies carried out in health services were females. They were white, were married, had a higher average age ranging from 50 to 60 years old, and had already tried to quit smoking more than once. A study³³ also reported depression in those women. The studies conducted in research centers were composed mostly of young and white women;^{9,16,28,35} out of these studies, one⁹ showed a significant percentage of highly level educated and depressed women.

In general, we observed that the predominant profile of women who carried out treatment for smoking cessation in health services was composed of white, married, employed, and highly level educated women.

Regarding the methodological quality, in most studies we identified randomized clinical trials (six),^{9,10,16,21,23,28} cohort studies (five)^{7,11,18,33,35} and a descriptive exploratory study⁸ (one). In some studies,^{7,18,33} the method was unclear and resulted in some difficulty in comprehending the inclusion criteria of the survey final sample. Most randomized clinical trials^{9,10,16,21,23,28} lacked the description of the randomization process^{16,21,28} and

the individuals who were removed from the studied group.^{9,10,16,21,28} Most cohort studies^{7,11,18,33,35} lacked the description of the participants removed from the studied group,^{7,11,18,33} and the descriptive exploratory study⁸ showed no enough follow-up for inferences. Another studies^{9,21,28} insufficiently analysed the profile of women who sought the health service. It emphasized the interventions applied during treatment in the results and discussion.

DISCUSSION

We found two types of health services: the general, which offered smoking cessation programs, and the specialized in smoking cessation. In the general services, the profile was composed of younger, highly level educated, and employed women.

Most participants who sought the service for smoking cessation had a high educational level and were employed, a fact that may reflect a favored social class. In fact, the prevalence of smoking habit presents significant differences between the different socioeconomic groups: individuals with a higher purchasing power have a higher chance of quitting smoking because the social environment in which they live exerts great pressure against tobacco use due to reports by anti-tobacco campaigns, and the damage it causes to health.³¹ On the other hand, the most impoverished segments of the world population show a increase in smoking use^{17,d,e} due to less access to information, education and health care.^f

To be employed was reported in most studies, and this has been characterized by some studies^{7,13} as a barrier to smoking cessation among women. Long journey work may encourage the adoption of behaviors that momentarily reduce tensions, such as smoking.⁶ In addition, adverse psychosocial conditions in the work environment, such as high level of stress and anxiety, have also been associated with smoking among women^{16,19,32} and are considered additional barriers to the treatment.^{7,8}

In relation to smoking history, two studies showed the same age at which smoking began: between 18 and 19 years old.^{10,28} One of these studies¹⁰ identified the association between older ages and more difficulty in quitting smoking as a result of the time of exposure to the psychoactive substance. On the other hand, younger women smoke more cigarettes *per day*, when compared to older women.¹⁰ That interferes in the successful tobacco cessation, because women who smoke from 11 to 20 cigarettes a day are less likely to quit smoking than those who smoke between one to five cigarettes.¹⁰

^d Eriksen M, Mackay J, Ross H, Shafey O. The Tobacco Atlas. Mexico: World Lung Foundation; 2009 [cited 2014 Jul 4]. Available from: <http://www.worldlungfoundation.org/ht/a/GetDocumentAction/i/10792>

^e Jha P, Chaloupka F. A epidemia do tabagismo: os governos e os aspectos econômicos do controle do tabaco. Rio de Janeiro (RJ): Instituto Nacional de Câncer; 2000.

^f Instituto Nacional de Câncer. Abordagem e tratamento do fumante - consenso 2001. Rio de Janeiro (RJ); 2001.

The age also influences the seeking for treatment: while younger women seek the smoking cessation service due to bad breath, stains caused by the substance, and the desire to stop the smoking habit by someone close; older women seek treatment because they have already experienced some health problems related to smoking, because of concerns about lung cancer, and because of the benefits of a more active lifestyle, hampered by smoking.²⁸ However, for both age groups, the concern about health is the main reason for smoking cessation.²⁸

Regarding the effort to stop smoking, three studies^{14,23,33} showed that almost all studied women had already tried at least once in their lives. In four studies,^{7-9,33} we identified that depression is one of the factors that interfere the treatment. Another reason that may contribute to the failure of this effort is the lack of assistance to cease smoking,²³ which increase the difficulties faced by them.

The findings of this review contribute to the formulation of actions directed to the female smoking. To offer full assistance to women who seek general health services and specialized services in smoking cessation, it is necessary to know their profile.

This review included different health services that kept smoking cessation programs, which allowed the

assessment of smoking women with varied profiles. The delimitation of a specific period of publication of the studies is inexistent. Because of the lack of previous systematic reviews on the subject, the search strategy did not restrict the papers by year of publication. The small number of studies that analyze the profile of women who carried out smoking cessation treatment limits the power of empirical evidence and conclusions from these results.

Although most studies found present a longitudinal characteristic, many of them lack groups of comparison between profile of women who carried out treatment for smoking cessation and women who did not, making it impossible to verify whether exist differences in the profile observed in this review. Additionally, the review was conducted only by two appraisers. This may contribute to the presence of publication bias.

To conclude, publications on smoking women are scarce and a Brazilian or Latin American study is inexistent. Studies will be needed to address the characterization of the profile of women who start the treatment for smoking cessation in Brazil, as well as review studies that include qualitative research and in languages uncovered by this review, which may increase the reach of evidences.

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